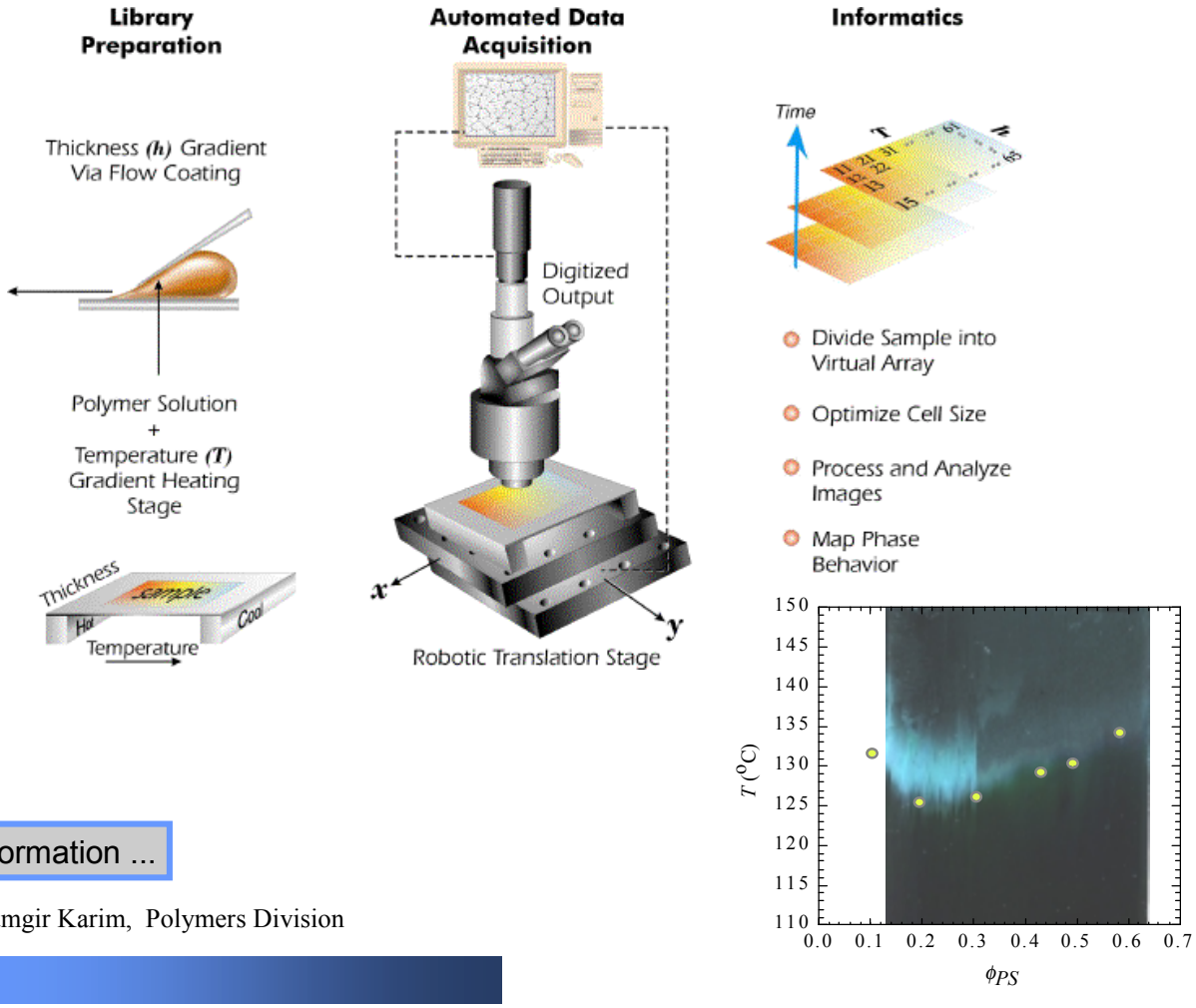
Polymer blend phase behavior

- Critical Issues
  - Important factors influencing polymer blends phase behavior include effects of added compatibilizer, organic molecules, and inorganic fillers. Process variables such as temperature, supercritical fluids, in-situ reaction, polymerization, and cross-linking affect the thermodynamic and kinetic miscibility of polymer mixtures.
- Research Strategy
  - The approach is to develop combinatorial methodology for applying continuously varying composition gradients of miscible and immiscible polymer blends including additives, and utilize spectroscopic characterization techniques for quantitative determination of local composition, while measuring phase boundary by automated microscopy under typical applied processing conditions.
- Research Highlights
  - The composition-temperature phase boundary was evaluated and validated for model PS/PVME blend system. A prototype composition mixing apparatus has been developed for the purpose, that also allows for the introduction of suspended nanoparticles and additives to study their effects on phase miscibility.



For more information ...

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